In sum, the green-up policy requires buffers between areas that have recently been clearcut and those areas that are scheduled for clearcut harvest. In addition to reducing visual impacts, it spreads potential disturbances to soil and other nontimber resources over time. Thus, environmental impacts are minimized. The application of this policy and others in the plan will result in a reduction of undesirable impacts on soil, water, fish, wildlife and aesthetics.

Alternative 1, the current policy, relies heavily on department field staff decision-making and their sensitivity to local concerns. It lacks consistency in application and does not deal effectively with statewide issues. Although the clearcut size limitation is the same as the preferred policy (100 acres), there is no requirement for green-up.

Alternative 2 allows 240-acre clearcuts, significantly larger than the size limitation of either the preferred policy or Alternative 1. It requires site-specific design by interdisciplinary teams for clearcuts between 120 and 240 acres. The reason is that clearcuts of this size can impact other nontimber resources such as hydrology, soils and wildlife. To reduce the probability that clearcuts of this size will damage these resources, the teams will assess when and where clearcuts are appropriate and propose mitigation measures.

Policy No. 33: Control of Competing Vegetation

The preferred policy states:

To prevent domination of crop trees by other vegetation, the department will select from the following methods for controlling competing vegetation:

1. **No treatment.**
2. **Nonherbicide.**
3. **Ground applied herbicide.**
4. **Aerial applied herbicide.**

The department will consider the no treatment method first and then move sequentially down the list. The department will select the first method on the list which is both effective and produces an acceptable return on investment. A method lower on the list may be used only if it substantially outperforms other methods. (current policy)

Three alternatives were considered by the department.

Alternative 1: The only acceptable methods for controlling competing vegetation are nonherbicide techniques.

Alternative 2: The department will control competing vegetation by using the following methods in order of preference:

1. No treatment.
2. Nonherbicide treatment.
3. Ground application of herbicides.

Alternative 3, the no-policy option, would allow the department to make this decision on a case-by-case basis with no guidance from the Board of Natural Resources.

Background

Vegetation on some sites may hinder tree growth and the re-establishment of a forest. In those instances, the department believes it may be necessary to reduce the competition of brush, weeds and grass to ensure that the new forest develops adequately. After careful analysis of each site and a review of objectives, the department normally chooses a method of controlling competing vegetation. The no-treatment option is always examined first.

The department's vegetation control program does not seek to eliminate competing vegetation but rather to prevent other vegetation from dominating the crop of trees. The program uses a variety of mechanical and herbicide techniques during the early stages of stand development.

The herbicides used by the department to control vegetation in the field are as follows (trade names in parenthesis):

1. Glyphosate (Roundup)
2. Picloram (Tordon)
3. Triclopyr
4. 2,4-D
5. Imazapyr (Arsenal)

The department prefers to use glyphosate. Picloram is used primarily on noxious weeds in Eastern Washington and on roads in Western Washington. The department deemphasizes the use of triclopyr and 2,4-D. The latter two chemicals will be used only when alternates would not likely be effective.

The department has taken steps to ensure that its herbicide program will not adversely affect the environment. In May 1986, the department commissioned a report, "Worst Case Analysis Study on Forest Plantation Herbicide Use," prepared by K.S. Crump and Co., Inc. The report evaluates the entire range of impacts of specific herbicides on the forest environment, including but not limited to water, flora, fauna and human health. In 1987, as a response to the worst case analysis, the department prepared a document, "Herbicide Use on State Forest Lands Public Response Summary and Proposed Management Approach." In addition, the department relies on another report, "Biological and Physical Effects of Forest Vegetation Management," dated September 1984, by Newton and Dost, in its evaluation of herbicides. All three documents are incorporated by reference into this document.

Comparison of Alternatives and Environmental Impacts

The **preferred policy** is identical in intent to current policy but is reworded slightly for clarity. It provides a high degree of flexibility by allowing for the use of all methods. The use of herbicides, particularly aerial application of herbicides, is limited to those situations where other treatments are not effective or where they result in an unacceptable rate of return. The preferred policy gives priority to "no treatment." The no-treatment approach will greatly reduce the risks that the department's efforts will cause significant, adverse environmental impacts. In the past decade, the department has deemphasized the use of herbicides, particularly by aerial applications.

Alternative 1 does not allow the use of herbicides at all, no matter what the circumstances. On some sites, these nonherbicide methods will result in higher direct costs; they may not be effective in controlling competing vegetation or they may be less effective than herbicide treatments.

Alternative 2 provides for the use of ground applied herbicides but precludes aerial application. It provides greater flexibility than Alternative 1 because it allows the department to match treatment to specific site conditions, though it will result in reduced overall efficiency and in increased costs when compared to the preferred policy.

Alternative 3, the no-policy option, would allow the department to make these decisions on a case-by-case basis. Thus, the department would be free to assess the situation and take action consistent with state statute but without guidance from the Board of Natural Resources.

Policy No. 34: Fertilizing, Thinning and Pruning

The preferred policy states:

The department will use fertilization, thinning and pruning on stands which will respond and produce an acceptable rate of return on investment. (current policy)

Two alternatives were considered by the department.

Alternative 1: The department will not attempt to improve wood quality and growth on trust lands.

Alternative 2, the no-option policy, would allow the department to make these decisions on an ad hoc basis without guidance from the Board of Natural Resources.

Background

During the past decade, the department conducted precommercial thinning on about 6,500 to 19,600 acres per year in the 1980s (actual range), and applied nitrogen fertilizers on about as many as 32,400 acres a year. The department anticipates that thinning and fertilizing will decrease substantially in the 1990s. There will, however, be a considerable variation in the number of acres involved in these efforts each year. The department currently prunes about 200 acres of forest land each year (removing dead and dying branches in order to speed the production of clear, knot-free wood). The amount of pruning is not expected to increase, though it will vary considerably from year to year.

Comparison of Alternatives and Environmental Impacts

The **preferred policy** is intended to encourage the department to conduct fertilization, thinning and pruning activities only on sites which will produce an acceptable rate of return. That means that the benefits must exceed the cost of fertilizing, thinning and pruning.

The impacts of the **preferred policy** are likely to be minimal. The amounts of activities planned for the decade are summarized in **Table 22** at page 99.

The major effect of the preferred policy comes from the fertilization program, which may result in a small and temporary increase in ammonia and nitrate levels in streams. Levels of nitrate and ammonia associated with forest fertilization have not been shown to pose a health hazard.

Monitoring of forest fertilization in the Pacific Northwest has not shown an increase in nitrates or ammonium levels above safe drinking water standards in streams. Measurable effects typically remain for only 4 or 5 days after application. Nitrogen levels in streams after forest fertilization have not been shown to cause algal blooms or detrimental effects of eutrophication. The department buffers streams to minimize direct entry of fertilizers into streams or lakes. For more information, see Impact of Forest Fertilization by D. Moore (1974), a document adopted by reference and included on page xi (table of contents).

Alternative 1 prohibits the department from attempting to improve the quality and quantity of wood through fertilizing, thinning and pruning. This alternative would likely reduce trust income over the long term (next 50 or 60 years).

Alternative 2, the no-policy option, would allow the department to make these decisions on a case-by-case basis with no established policy.